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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •

September 4, 1937

Grizzlies Growl, Grab

See Page 153

A SCIENCE SERVICE PUBLICATION

SCIENCE NEWS LETTER

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The Weekly Summary of Current Science

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DO YOU KNOW?

London has been shadowed by an eclipse of the sun only once since 1140 A.D.

It is old-fashioned to raise a hat in greeting in Italy—the favored gesture is the Roman salute.

The University of Athens, which celebrated its hundredth anniversary this year, started with 14 students and now enrolls almost 10,000.

A Siamese-twin curiosity of the forest world is a mulberry tree and a sweet-gum tree growing from the same trunk, in Tyler State Park, Texas.

About 80 tons of wild-flower seeds will be planted in Texas this year through efforts of the State Highway Department to beautify roadsides.

According to an ancient Roman road register, issued about 200 A. D., the Roman Empire then had 372 important paved highways, totalling about 48,000 miles.

Now that hundreds of brands of dog foods are being sold, Connecticut is considering the idea of state inspection.

A particular kind of seaweed found in the south of England is being used in making synthetic leather.

Aviators seldom encounter birds 5,000 feet above ground, and few are seen above 3,000 feet except in regions high above sea level.

Tests show that even a clean glass will pick up 40,000 to 50,000 bacteria on its rim, if it is inverted on an unsterilized surface.

After the Revolutionary War with England, some Americans went so far as to favor abandoning English speech for this country, suggesting that either Greek or the Algonkian Indian language be adopted.

There are now about 8,000 miles of highway in the United States with more than two traffic lanes.

WITH THE SCIENCES THIS WEEK

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PSYCHOLOGY

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SEISMOLOGY

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ZOOLOGY

What good are skunks? p. 157.

GEOLOGY

Radioactive Potassium Is New 'Clock' to Check Age of Earth

K 40 Analysis Shows World Is Less Than 3,000,000,000 Years Old; New Estimate Agrees With Uranium Figure

A RADIOACTIVE potassium "clock," latest aid to scientists seeking to know the age of the earth, indicates that the world is less than 3,000,000,000 years old, Dr. A. Keith Brewer of the U. S. Bureau of Chemistry and Soils reports (*Science*, Aug. 27.)

Radioactive potassium, an isotope of the common variety with an atomic weight of 40 instead of 39, he also indicated, is becoming a "lost element," similar to radium, whose amount is also gradually diminishing.

Radioactive potassium, K 40, changes over long periods of time into the common variety of calcium, the metal that forms the basis for lime and limestone. Scientists can compute the age of the earth from their knowledge of how much calcium is to be found today and a knowledge of the rate at which radioactive calcium decomposed.

Results by the potassium "clock" method, Dr. Brewer reported, are in close agreement with estimates of the earth's age gained from another radioactive "clock", that of radium, uranium and lead.

Radioactive potassium, like uranium, was at one time much more common, he pointed out.

Caused Great Changes

Radioactive potassium, which Dr. Brewer reported last spring to be playing a vital part in life processes, particularly in the growth of plants. may have been partially responsible for the tremendous changes in plant and animal life that occurred during the Carboniferous age, some 250,000,000 years ago.

"It is interesting to note," he declared, "that the K 40 content (of the earth) during the Carboniferous era was from four to fifteen times that existing at present; this may have had an important influence on mutations and rampant growths during that era," he pointed out.

The potassium clock has also aided in setting a date approximately one and a half billion years ago when the earth's crust began to solidify, thus making life possible. Calculations based on the potassium clock fix the time as 1,430,000,000 years ago, as compared with 1,500,000,000 years ago for the uranium-radium-lead clock.

Radioactive potassium is today comparatively rare, most of it already having disintegrated into calcium. Potassium's ordinary variety, K 39, is 8,300 times as common as the radioactive isotope, K 40, Dr. Brewer reported.

At the present time, indicated Dr. Brewer, the amount of radioactive energy liberated by potassium, uranium and thorium is of the same order of magnitude. A billion years ago, however, the supply of energy liberated by the radioactive form of potassium, K 40, was far in excess of that from uranium and thorium.

His results, the chemist concluded, "also show that in early geological times, radioactivity was far more prevalent than it is today.

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ORNITHOLOGY-RADIO

Shortwave Radio Aids In Recording Sea-Birds' Chorus

CULMINATING an expedition on which the voice of a bird was for the first time recorded on film by means of radio, ornithologists at Cornell pronounced successful the first records ever made of the voice of Atlantic petrels.

Albert R. Brand of the laboratory of ornithology at Cornell, and pioneer in bird-song recording, did the field work in cooperation with the Bowdoin College department of zoology. Taking Harold Axtell of Cortland, N. Y. along as his assistant, Mr. Brand travelled in his sound truck to northern Maine, ferried across to the island of Grand Manan, and arrived within six miles of

TO TAME WILD NOTES

Paul Kellogg and Albert R. Brand, Cornell University ornithologists, with part of the radio-aided recording equipment used to write the notes of wild birds on sound film.

Kent's Island, where Bowdoin College maintains a biological laboratory under the direction of W. O. Gross.

A powerful short-wave radio station, VE1IN, is maintained on the island, in charge of Thomas Gross and a corps of operators. This was made available for the project in sound-recording.

In burrows dug in the loose soil a mile from the laboratory among the rocks on the outer slope of the island nests a colony of Leach's petrels. The petrels are nocturnal in their habits, and a strange concert arises from the mouths of these burrows before the males go in search of food for the young.

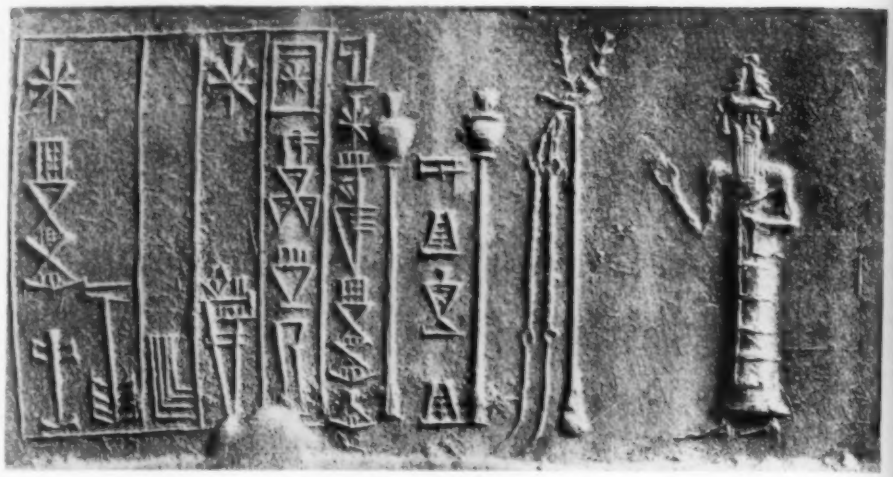
Frog-Like Chorus

Mr. Brand wished to get an accurate record of this frog-like chorus of bird voices. Faced with the impossibility of getting a sound truck to the island, the expeditionists laid a mile of telephone wire from the radio station to the petrel colony. The sensitive microphone with its parabolic reflector used by Mr. Brand in his sound recordings was attached to the end of the telephone line. A new portable field amplifier developed by Prof. True McLean and Paul Kellogg of the laboratory of ornithology, which could be carried easily over the rocks, amplified the petrels' song sufficiently so that it could be sent to the radio station.

As the petrels stood at the entrances of their burrows or wheeled about overhead giving their croaking notes, the microphone picked up the sounds and with the aid of the amplifier sent them to the radio station, whence they sped across the intervening six miles of the Bay of Fundy to the sound truck waiting on the island of Grand Manan. In the sound truck the electrical waves set up by the voices of the birds caused a tiny galvanometer to deflect a ray of light on the edge of a motion picture film which shot past the vibrating light at the rate of 90 feet per minute.

Listening to the developed film as it was played through the reproducer in Fernow Hall at Cornell, Prof. Arthur A. Allen reported that not only the voices of the petrels were recorded successfully, but many other sounds that emanate from Kent's Island at midnight were gathered in and permanently recorded on the film.

The voice of the European nightingale has been broadcast a number of times from gardens near London, England, but this is believed to be the first time that the voice of any bird has been recorded on film by means of radio.



SIGNATURE

Doctor Ur-Lugal-edina of Babylonia signed his name in this odd style, 4300 years ago. He had the whole signature on a personal seal, so it was no trouble.

ARCHAEOLOGY—GENERAL SCIENCE

Babylonians Merit Honor as Original "Fathers of Science"

By DR. WALDO H. DUBBERSTEIN
The Oriental Institute, University of Chicago

ASSUREDLY the ancient Babylonians deserve the title "Fathers of Science."

Through 3,000 years of documented history we can trace their slow steps toward modern science. We today have no reason to feel smugly superior in our advanced knowledge. The really hard steps in progress are the first ones. Those were taken for us thousands of years ago.

Four thousand years ago, Babylonian surgeons set broken bones, made major and minor body incisions, and even attempted eye operations. A pictorial representation shows the physician with his inevitable case and bandages.

Sicknesses were known by specific names, and symptoms were recorded. Magical and religious elements of Babylonian medicine are easily overemphasized, while honest medical prescriptions are overlooked. There is a reasonable purpose in Babylonian magic. Once gods and demons had been accepted, then charms and incantations for their control were also necessary. Had magic been omitted, the patient would certainly have lacked confidence in his physician. It was part of his professional "bedside" technique. But scores of simple medical prescriptions have no magic in them. Some even have real medicinal value.

Mathematics was obviously practical in a complicated business development such as Babylonia experienced almost 5000 years ago. Ancient textbooks offer simple and complex problems, such as:

"A square of 356 yards has been divided into eight triangles; compute their areas," and "Given a rectangle whose width is 10 yards, and whose length is 40 yards, compute its diagonal." Two distinct solutions are offered by the author of the textbook for this last problem, both of which reveal a small margin of error.

In the oldest texts are found addition, subtraction, division, multiplication, and fractional numbers. Square and cube root tables, as well as multiplication tables, were also compiled. Even the theorems commonly ascribed to the Greek Pythagoras and Thales, who lived in the sixth century B. C., seem to have been known, empirically at least, in Babylonia 4,000 years ago.

Astronomy began its climb toward a respectable science as an assistant to that pseudo-science, astrology. Yet by 2000 B. C. Babylonian astronomy had assumed much of its later form as a practical science. Days began with the setting sun,

months with the new moon, New Year theoretically with the spring equinox. The necessary adjustment between the lunar and the solar year was made by inserting extra months. All this demanded specific astronomical information. The path of the sun through the heavens had been charted through the twelve constellations, whose names still survive in our zodiac. At least 71 stars were carefully studied and named.

Astronomy made real scientific progress during the last millennium before the Christian era. Solar and lunar eclipses as well as heliacal risings were now accurately predicted. The precession of the equinoxes may have been recognized, and the tropic year was distinguished from the sidereal. And so Babylonian astronomers are now accorded long overdue honor for accomplishments commonly attributed to Greek astronomers.

Progress in biology was not so pronounced as in astronomy, but elementary steps were taken. Long lists of animals, ordered in divisions and subdivisions, reveal an active interest in the living world. When fish are grouped with clams or eels with snakes we may not agree with the classification, but we understand the reasoning. More than 400 distinct plants and trees had been identified and named by these ancient scientists.

Geographical knowledge was certainly inadequate and restricted, in ancient Babylonia. But there was interest in accumulating data on distances between cities, and descriptions of regions. City plans are sometimes so carefully drawn that they are of actual help to modern excavators. One ambitious Babylonian geographer produced a "world" map which plainly shows that there were still many worlds left for him to explore.

Chemistry as a science developed out of practical needs and practical experiences. Metal smelting was practised before written history, more than 5,000 years ago, and it was through experimentation with fire that early man learned much about the properties of many minerals. About 120 minerals are recognized in Babylonian lists. These were distinguished and classified according to various standards, such as use, color, hardness.

Detailed formulas for making various kinds of glass are preserved. A recipe for lead glaze colored with copper is dated 3,500 years ago. Aside from practical uses for chemistry, Babylonians also interested themselves in the ever fascinating problems of producing gold from baser minerals and the manufacture of synthetic precious stones.

It was their practical compilation of observed phenomena, as well as their discovery of general truths, that made the Babylonians pioneering scientists. One hundred years of exploration and research in the field of ancient Near Eastern history have yielded such astounding results that today it is unwise to speculate on the further capacities and resources of these early people along any line of human endeavor.

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Babylonia's wise men used instruments like this for sighting, when they observed the celestial bodies. The instrument shown belonged to Egypt's famous king, Tutankhamon.

PSYCHIATRY

No Sex Crime Trivial, Says Physician, Urging Mental Care

Asks Examination of All Convicted of Such Crimes; Many Guilty Are Seriously Ill, Government Psychiatrist Declares

MENTAL examinations of all persons convicted of sex crimes would meet with the approval of physicians who specialize in the treatment and study of the mentally ill. Such a plan as that proposed for New York City is considered a step in the right direction.

Many of those guilty of such offenses are seriously ill mentally, says Dr. John E. Lind, in charge of the criminal insane at St. Elizabeth's government hospital at Washington, D. C. Although very little can be done toward curing the sexually abnormal adult, it is very important that they should be segregated for the protection of society and should be given medical care.

Those guilty of sex offenses usually are in one of three groups, Dr. Lind explained. First, the feeble-minded are frequently guilty, not that they are sexually abnormal, but they lack the intelligence to control their behavior and the initiative to find in marriage a socially acceptable outlet for their sex impulses.

Another group are old men who are becoming senile; like the feeble-minded they are not responsible, and cannot control themselves. The third group are the truly sexually abnormal; although such persons may go through life without doing anything publicly that would get them into trouble with the law, they are always a potential danger and may at any time be guilty of serious crimes against innocent persons.

Sex crimes against children are not, medically speaking, different from those against adults. Children are the victims with pitiful frequency because they are so helpless, because they are easily lured away into sequestered places and because they would not be able to betray the attacker by an accurate description or might be silenced by threats.

No sex crime is considered trivial by the physician. Although an attack upon a child arouses a much greater public resentment and results in more serious legal punishment, those other offenses that are usually dismissed with a five dollar fine in police court—those of the "masher" type—are just as serious to the physician because they are symptoms of sexual abnormality which may just

as well later find expression in rape or sex murder.

"There is no such thing as a trivial sex offense any more than there is a trivial hallucination or a trivial delusion," declared Dr. Lind.

Not all sex offenders are mentally unbalanced, however, Dr. Lind warned. Alcohol is responsible for many an indiscreet act on the part of a person who may be perfectly normal when he is sober. It would be silly to commit such a person to a mental hospital if his drinking is merely an incident and not habitual alcoholism. Sex offenses are sometimes committed by young boys who are temporarily unbalanced because of their youth and lack of self control or because of some acute strain on their sanity. Such cases deserve understanding treatment as dictated by the particular circumstances.

Prison Not Beneficial

Prison is not the place for these boys or for any sex offenders. Prisons are the gathering places for men who already have very low moral standards and perverted minds. To throw a sexually unstable person into such company would probably increase his difficulties; to release him after a term in such a school would result in exposing the public to greatly increased danger.

Although no other mental disease offers such a hopeless outlook as that of the sexually abnormal, Dr. Lind believes that medical science could help such cases if only they could be reached long before the stage when the patient appears in court charged with a serious offense.

Mental clinics in the schools, where children could be examined for the beginnings of these and other mental abnormalities as they are now looked over for dental defects or bad eyesight, might result in a great reduction in crime of future years and add to human happiness in a way that no statistics could reveal, Dr. Lind said.

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A new South American weevil has started destroying crops in a small area in Alabama and Florida, and is being urgently investigated by government entomologists.

Sea island cotton is having a comeback success in Florida, due to better methods of culture and insect control than were possible when the crop was wrecked by boll weevils 20 years ago.

MEDICINE

Veterans' Administration Operates 5 Cancer Hospitals

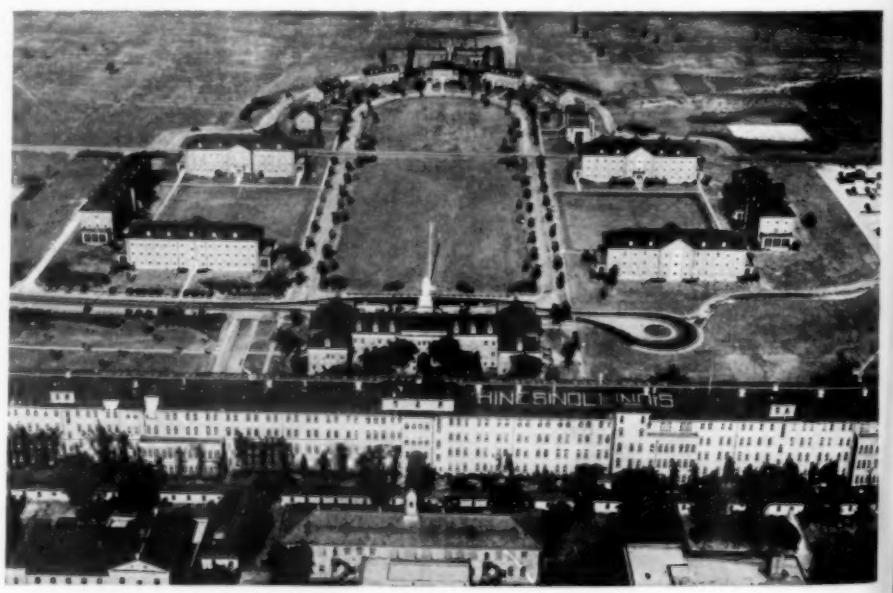
Government Surgeons Mobilized to Combat Increase of Disease Among Ex-Soldiers; Hines Clinic Largest in World

By GENERAL FRANK T. HINES
Administrator of Veterans' Affairs

BECAUSE of the increased morbidity and mortality incidence of cancer in the general population and because steps are being taken by the Federal Government to establish a Cancer Institute in Washington, D. C., for the study of the cause and nature of cancer and to develop improved methods of treatment, it has occurred to me that the public might be interested in learning what the Veterans' Administration has accomplished during the past few years in its effort to control and treat cancer in veterans.

This disease is appearing in veterans at an accelerating rate the same as obtains in the civil population. The present rate of monthly admissions and readmissions for cancer in Veterans' Administration facilities is about 380. A total of approximately 700 veterans with cancer are being treated in the facilities of the Veterans' Administration at all times. Most of these patients are being cared for in the special tumor clinics which have been established at certain of the facilities of the Administration.

Several years ago it became apparent that the disease was increasing in incidence in veterans, and that special facilities would have to be provided for their hospitalization. Accordingly, a tumor clinic was established at Hines, Ill. This, by the way, is the largest cancer clinic in the world, and is one of the best equipped institutions of its kind. In addition five auxiliary tumor clinics were established at strategic geographical points. These are located at Veterans' Administration Facilities, Portland, Ore., Los Angeles, Calif., Bronx, N. Y., Washington, D. C., and Atlanta, Ga. At each of the tumor clinics there is available high voltage X-ray equipment, and a



G H Q OF CANCER FIGHT

Chief of the tumor clinics that care for veterans suffering from cancer is located at the U. S. Veterans' Administration Facility at Hines, Ill. This particular clinic is said to be the largest of its kind in the world. The giant hospital building, partially seen in the foreground of the airplane view, is a half mile long. Other buildings include research laboratory, staff and nurses' homes and administration quarters.

TREATMENT

Powerful gamma rays from a radium "bomb" penetrate the body tissues to kill deepseated cancer cells which threaten life. Hines Hospital owns three grams of precious radium, valued at $25,000 at current prices.

sufficient quantity of radium to take care of the needs of the veterans applying for treatment. There are all told approximately 3.9 grams of radium and eleven high voltage X-ray machines in the tumor clinics of the Veterans' Admintration.

At Hines, Ill., the Administration has a radium emanation plant for producing radium gas or radon. Approximately one gram of radium is in solution, and, by means of the emanation equipment, sufficient radon gas is manufactured for the treatment of all cancer patients at Hines. In addition there are two grams of radium in an apparatus known as the "radium bomb." This apparatus is used for applying radium element in such conditions as cancer of the intestines, larynx, and tonsils.

All of the tumor clinics just mentioned have on duty cancer specialists who have had special training and experience in the diagnosis and scientific treatment of the disease. In addition outstanding consultants are available at the tumor clinics to cooperate with the full-time medical officers in the treatment of cancer cases. They include such cancer specialists as Drs. James Ewing, Frank E. Adair, Max Cutler, Edwin Merritt, and a number of other men well known in the field of cancer.

Each tumor clinic is so organized that every patient is given the benefit of consultation by a group of experts and consultants, inasmuch as no single physician is competent to treat cancer, but the combined efforts of the surgeon, the radiotherapeutist, the pathologist, physicist, and other specialists are needed to decide upon the diagnosis and treatment in each case. It would seem, therefore, that the tumor clinics of the Veteran's Administration are fully equipped and competently manned for the diagnosis and treatment of this disease.,

The Veterans' Administration has not been content with (*Turn to Page 159*)

PSYCHOLOGY

Over-Anxious Parents May be Cause of Children's Stuttering

STUTTERING may sometimes be caused by oversolicitude of anxious parents who apply the label "stuttering" to the normal repetition of words and sounds in ordinary baby talk. This statement and the implied warning were made by Dr. Wendell Johnson, of the University of Iowa's Speech Clinic, in a report to the newly organized American Association of Applied and Professional Psychology at Minneapolis recently.

Nearly fifty little children, most of whom are under five years old, have been studied by Dr. Johnson in an attempt to learn how stuttering starts, and what causes it. In health and also psychological and sociological factors, the group turned out to be a normal, ordinary bunch of children. A few had troubles of one sort or anther and something like 25 per cent had shifted from left- to right-handedness or done so partially, but for the most part there was nothing out of the ordinary.

Sound Repetition Usual

For nearly all the youngsters (90 per cent) the "stuttering" began with an occasional and effortless repetition of sounds or with prolonged pauses and interjected "Ah's." Later these were accompanied by tension, grimaces, and emotion. As a rule the "stuttering" occurred when the child was thwarted, humiliated, undecided, or rebuked, Dr. Johnson found.

Such repetitions of sound are not peculiar to the so-called stutterers, but are common among practically all young children Dr. Johnson emphasized. But in the case of these particular youngsters, the label "stuttering," or "defective" was tagged onto them, perhaps merely because their parents were peculiarly sensitive to the hesitating speech. The children themselves then began to think of their speech as "stuttering" and this in turn led to additional embarrassment and additional stuttering.

Thus the development of stuttering appears to be a spiral process, Dr. Johnson concludes. An originally normal hesitation, because of the attention called to it, leading to more hestitation, and it in turn to more, practically indefinitely.

Serious criticism of the new style of psychological examinations calling for a short answer or the mere underlining of words or choice of a printed correct answer was presented to the meeting by Dr. F. L. Wells, of a Boston, Mass., psychological laboratory.

Various types of mental tests were themselves put to a test by Dr. Wells, who gave them to two groups of individuals, one of which included men superior in economic efficiency, while the other contained those lacking in this important ability.

Conventional intelligence and personality tests fail to make any distinction between the two groups, Dr. Wells found. The superiority of the one group is, however, disclosed by those testing procedures which place a higher premium on "vision" or "imagination."

Why is it that men and women bothered with psychological problems may consult physicians, classroom teachers, eye specialists, ministers, social workers, and even WPA workers, but not psychologists?

That question was raised by Dr. Marné Groff, consulting psychologist of Kansas City, Mo. Dr. Groff believes it is because people do not know of the services that a competent, professionally trained psychologist can offer, because of lack of professional organization of the psychologists and lack of cooperation with physicians and because the profession has been injured by those calling themselves psychologists but who are really quacks or persons lacking real professional training.

AVIATION

U. S. Loses Supremacy In World's Aviation Records

AVIATION records mean dollars in the value of airplane exports. It is more than coincidence that during the last two years, when the United States led the world in the number of aviation records held, aeronautical exports reached an all-time high, says Charles F. Horner, president of the National Aeronautical Association.

The sad part comes because now Italy has replaced America as leading world record holder. Last year the aviation record situation looked like this:

United States	54	records
France	37	"
Italy	26	"
Germany	8	"
Great Britain	1	"
Russia	1	"

Now, however, the aviation "batting averages" of the world have shown significant changes, and look like this:

Italy	45	records
United States	43	"
France	35	"
Russia	15	"
Germany	14	"
Great Britain	4	"

Fully as dramatic as Italy's climb from third to first place in the record ratings is the rise of Russia from one record to 15 records within a single year, states Mr. Horner's summary in the current issue of National Aeronautics.

A feature of the records race has been the battle between Italy and Great Britain for the world's altitude mark. Since last summer first Italy and then Great Britain have alternated in pushing the mark higher, each time by approximately 2,000 feet. It is now held by Great Britain at 53,937 feet.

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MEDICINE

18th Century Convicts Served As Guinea Pigs

WHEN a convict condemned to death or life imprisonment agrees to serve as human guinea pig in return for a remand of his sentence, it's news. But it is not really a new idea. Neither is that other apparently modern method of scientific investigation, the use of identical twins for scientific study.

Digging into the 18th century records of the reign of King Gustav III of Sweden, Dr. B. E. Dahlgren, chief curator of botany of the Field Museum in Chicago, found that King Gustav used a pair of convict twins as guinea pigs to settle, in quite 20th century scientific fashion, a controversy of the day.

The argument was over the respective merits or possible injurious effects of tea and coffee. (That row over whether tea and coffee are harmful is an old one, too.) The two beverages had but recently been introduced into the Scandinavian countries and the partisans and promoters of each vied for the market by claiming the other was harmful and dangerous to health.

King Gustav III became tired of the controversy and when two identical twin brothers were convicted of murder, and condemned to death, the king saw a way of settling the problem once for all. He commuted the sentences to life imprisonment with the condition that one twin must be given a large daily dose of tea and the other an equivalent amount of coffee. In this way he hoped to get what might have been called pretty good scientific evidence as to which beverage was more harmful.

As it turned out, the brothers lived on and on, till public interest died away. Finally, at the age of 83, one brother —the tea drinker—died. The question was thus settled, presumably to the satisfaction of the Swedish people who now lead the world in per capita consumption of coffee.

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PSYCHOLOGY

New Professional Society For Practising Psychologists

A NEW scientific society was born when psychologists who gathered at the University of Minnesota for the regular annual meeting of the American Psychological Association organized the American Association of Applied and Professional Psychology.

The new organization will be a professional organization, serving practicing psychologists somewhat as the American Medical Association serves medical doctors.

In scientific sessions the members discussed problems in clinical psychology, including treatment of mental defectives and those with speech and nervous disorders; consulting psychology; educational, industrial and business psychology.

Practical problems that also received attention at sessions included the technique of giving mental tests, and source and influence of attitudes toward social questions; development of tests for post-depression occupations; and testing of workers and automobile drivers for accident proneness.

Science News Letter, September 4, 1937

IN SCIE

SEISMOLOGY

Cables Beat Earth Waves In Reporting Earthquake

THE EXTENSIVE telegraph set-up which is bringing America the running story of the undeclared Chinese-Japanese war enabled a report of the Manila earthquake of Aug. 20 to reach America before the quake shock waves, traveling through the earth, moved the seismological instruments in American earthquake detecting stations. This is the very rare case that forms the exception to the rule that most earthquakes are first reported by scientists.

Seismological stations in the Philippines, Hawaii, Canada, and the United States send in to two collecting centers, St. Louis and Science Service in Washington, the code reports on all earthquakes they detect. Science Service forwards this information to the U. S. Coast and Geodetic Survey, where an epicenter, or point of origin of the earthquake, is computed.

Although the so-called Manila quake was severe in that city, it is highly probable that the epicenter of the quake was perhaps hundreds of miles away. Early, tentative estimates of the earthquake's center of origin place it somewhere in the Pacific Ocean.

Science News Letter, September 4, 1937

PHARMACY

Medicines in Future May Be Grapefruit-Flavored

REMEMBER how orange juice was once used to disguise the taste of castor oil when that potent stuff was a standard household remedy? Castor oil has been made practically tasteless now, but pharmacists still need flavorings to disguise the taste of bitter or otherwise unpleasant medicines. Grapefruit juice promises the newest medicinal flavoring. Its advantages for this purpose, including its abundance, cheap cost and the fact that it contains vitamins A, B, C and G, were reported by David J. Mason of New York to the American Pharmaceutical Association at its recent meeting.

Science News Letter, September 4, 1937

E FIELDS

MEDICINE

Tetanus Treatment a 'Must' For Street Accident Victims

TETANUS antitoxin, the lockjaw preventive, should be given to every person injured in a street accident, even if the injury is only a small scratch or cut, physicians are reminded in a new warning by Dr. Eric C. Gilles of the Johns Hopkins University School of Hygiene and Public Health. (*Jour. A. M. A.*, Aug. 14).

The germ that causes lockjaw, or tetanus, to give it its scientific name, was found in nearly one-fifth of 63 samples of dust collected on down-town streets in Baltimore, Dr. Gilles reported.

Hospitals have recently been called old-fashioned for adhering to the custom of giving the tetanus antitoxin to all persons scratched or cut. The practice could be abandoned, some physicians argued, because since the disappearance of horses from the streets of most cities, street dust probably would not harbor the tetanus germs. These germs, according to generally accepted theory, regularly inhabit the intestinal canal of man and other animals.

Tetanus germs, however, are widely distributed in street dust even at the present day, Dr. Gilles asserts on the basis of his findings. Hospitals are thus vindicated in adhering to their practice of giving the antitoxin to all cases of street injury.

The fear that some persons sensitive to the serum of the antitoxin may be made temporarily ill by it is, in Dr. Gilles' opinion, not sufficient justification for failing to give this preventive.

Science News Letter, September 4, 1937

ANTHROPOLOGY

Ever See An Indian Dude?—Braves Thought Him a Sissy

SURE, there were dude Indians; right out in the Wild West. But the other fellows thought them sissies.

A description of a real Indian dandy is disclosed in a long-unpublished diary left by a Swiss artist, Rudolph Kurz, who roamed the Plains country almost a century ago. The Smithsonian Institution has just translated and printed it.

This well-dressed young Crow Indian is described by Kurz as wearing coat, leggings, and hood fashioned from a new Mackinaw blanket, and trailing carelessly after him another Mackinaw blanket, so as to display its eye-filling designs.

His bow and quiver were in two broad bandoliers beaded in coral. His rifle swung over his shoulder, rested in a sheath. He carried no less than three pouches laden with beads; and a knife sheath embroidered and fringed.

He enjoyed music wherever he went, provided by little bells on knife sheath and knee bands.

Kurz noted that this Indian was manifestly the darling of many girls who hoped to be his future wives. But other Crow braves didn't like him. They thought he was a sissy.

Science News Letter, September 4, 1937

ASTRONOMY

Comet, Outward Bound, Was Almost Missed

HAD it not been for the skill of Dr. Edwin P. Hubble, of Mt. Wilson Observatory, the comet which he discovered on Aug. 4 would probably have sneaked away from its visit to the center of the solar system without detection. It had already made a good start towards complete disappearance, for latest calculations of its path show that it was closest the sun on Nov. 22, 1936, when it was approximately twice as far away as we are. Now it is nearly four times the earth's distance from the sun.

According to calculations announced by the Harvard College Observatory at Cambridge, Mass., the comet will be about 265,000,00 miles from the earth in early September; a month later, 315,000,000 miles, and in November, about 380,000,000 miles. So far, no one knows whether it is periodic, so astronomers are unable to say whether it will ever return to the earth's vicinity. At its present distance from both sun and earth, it is so faint that it is only visible through very large telescopes.

The first announcements of the orbit of Hubble's comet indicated that it would be near the sun next December, at which time it would have also been near the earth, and would probably have been visible to the naked eye. This announcement was in error, however, because of a mistake in reporting one of its positions in the sky.

Science News Letter, September 4, 1937

PHYSICS

Noble Metals Now Coat Glass Only Atom Thick

A WAY of coating plates of glass, enamel and quartz with almost atom-thick layers of gold, silver, platinum and other precious metals so that neither mechanical, electrical nor chemical forces will strip them off, is revealed in a patent (No. 2,047,351) granted to P. Alexander, of Brussels, Belgium.

Silvered mirrors, for example, may be obtained to which the silver sticks most tenaciously.

The inventor has found that by first applying an almost atom-thick coating of some baser metal, such as iron, nickel, or cobalt to the surface, the layer acts like "glue" to hold fast the top coating of the more precious silver, platinum, of gold.

In an example of the method, while the plates to be coated are heated, the "glue" layer of nickel is deposited by what is called "cathodic dispersion." In this method the nickel is electrically broken into atoms and these are permitted to condense on the quartz plate to form a nickel layer of about four ten-millionths of an inch thick. In the same way the layer of platinum is deposited on top of this.

Such coated plates, states the inventor, can be heated to high temperatures without the layers cracking off. They can be used instead of wires for electric resistances. Sulfuric, hydrochloric and nitric acids even in concentrated solution, it is claimed, do not dissolve the layers away. Nor will they oxidize or rust.

Science News Letter, September 4, 1937

ZOOLOGY

Enraged Grizzlies Growl As 50,000 Visitors Stare

See Front Cover

THE angry grunts of enraged grizzly bears are a common sound at the Yellowstone National Park feeding grounds at mealtime. During July more than 50,000 people packed themselves into the feeding enclosure to witness a show seen nowhere else on earth. The enclosure is used to keep the public out; not to restrict the bears. As many as 58 grizzlies and three black bears have appeared at one time for their meals. While fights do start they rarely last long because food is plentiful and the fighting wastes time.

Science News Letter, September 4, 1937

GENETICS—PSYCHOLOGY

Twins May Become Unlike

Heredity Determines Inescapably That Identical Twins Look Alike; Environment May Make Mental Differences

By DR. FRANK THONE

QUINTUPLETS were a world-shaking event. Twins as a rule are only a local disturbance. But just because of their local proximity, they stir up as much interest in their way as simultaneous infants in larger batches.

Other people's conduct toward twins, and their own behavior toward each other, tend to heighten the interest that naturally attaches to them and thereby perhaps emphasize, and if possible increase, the natural close likeness between them.

Their fond mother dresses them alike. They are always kept together, and indeed in most cases seem to have a strong preference for each other's company. Often they develop a half-uncanny trick of thinking together, so that they both speak up at the same time and say the same thing, like a rehearsed chorus. In a world where people are all so different their similarities become a standing wonder, and even something of a social asset.

So much emphasis is placed on twins' similarities, and so much is done to preserve and heighten them, that it is sometimes questioned whether they can be different at all. There is considerable theoretical reason why true twins should never differ. True twins, identical twins that are formed before birth by the halving of the original fertilized egg, carry completely duplicate sets of genes, or units of heredity. Since genes are supposed to determine what you do as well as what you look like, two individuals with duplicate sets should be expected to be alike in both appearance and action.

But can such identical twins ever be different? Isn't it possible that environment might overcome the effects of identical heredity to some extent at least? Or are the genes all-powerful, so that twins will always look and behave alike no matter how different their surroundings?

It isn't easy to answer that question, because under normal circumstances twins are brought up together, sharing the same environment as they share the same heredity. Their very inseparability tends to frustrate scientific curiosity as to what would happen if they were separated and kept apart.

Yet much separated twins would be excellent material to study, for the answer to many psychological and sociological questions.

Scientists in other fields like to take identical samples of uniform material and subject them to different kinds of tests. Thereby they are able to estimate the comparative effects of various stresses and strains. Twins are the nearest thing to identical samples of uniform material that this complex stuff called human nature affords.

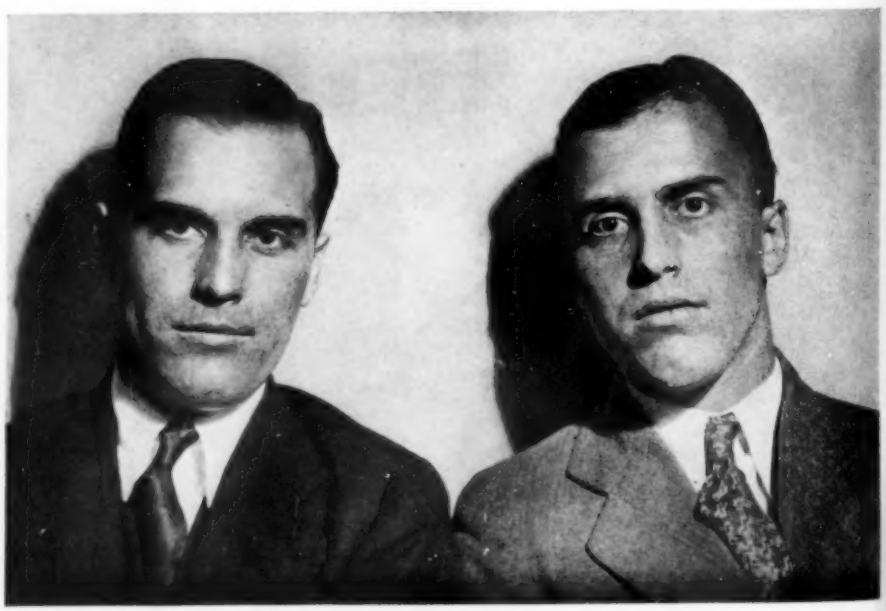
Of course no one would deliberately tear twin infants out of each other's arms and keep them apart for cold-blooded experimental purposes. But sometimes ill fate—death or divorce of parents, or other domestic calamity—will separate twins and keep them apart for years, sometimes until they are quite grown up. Accident accomplishes what scientists are too humane to do of deliberate purpose.

Three University of Chicago professors, Horatio H. Newman, biologist, Frank N. Freeman, psychologist, and Karl J. Holzinger, statistician, have collected records of twenty such separated twins and made an exhaustive study of them. Their results are reported in a new book published by the University of Chicago Press.

Twelve out of the twenty cases were separations during the first year of life; one was as late as seven years. The duration of separation ranged from eleven to about 53 years. Some of the separated twins had chances to visit each other at times, but in other cases contact was lost completely for years.

Some of the separated twins had approximately equal educational opportunities and fairly similar social environment, others differed widely in either or both respects.

In addition to these separated pairs of twins, the three Chicago investigators obtained detailed records on a much larger number of pairs of identical brothers or sisters reared together, so that they are able to offer comparative conclusions regarding relative effects of heredity and environment, when the



DIFFERENT

Paul C. and Paul O. They don't look much like identical twins, but they are, and despite contrasts in upbringing that have made them unlike in mental ability they are still rather similar emotionally.

ALIKE

Maxine and Virginia, at five. They have become less similar physically now, at least temporarily, because of a different medical and dietary history. But mentally and in personality traits they are still very much alike.

heredity can be assumed to be the same for both members of the pair.

In general, then, they find that "Human intelligence is not definitely fixed at birth by genetic factors but may be distinctly influenced by such environmental factors as education and social positions . . . Not only can intelligence be influenced by environment, but personality traits such as temperamental and emotional attitudes are affected by environment to an even more marked degree. But heredity is dominant in all physical characteristics except the obvious one of body weight."

That is, to sum it all up in a sentence: "Heredity determines inescapably what you are going to look like, but environment has a great deal to do with the way you think and act."

Intelligence tests were of course given to the twins, both those who had grown up together and the separated ones. In those reared together the I. Q.'s were practically identical; separated twins were hardly any more alike than total strangers.

Results of three educational tests were correlated with social differences in the environment of the separated twins, and the statistical average indicates that cultural features in social environment are also definitely effective in modifying the I. Q.

Results of comparisons of personal traits like temperament and emotion, it was found, could not be handled statistically. Either the differences are not measurable by the available tests, or else the factors in the environment which do produce such differences in personality are not those of formal schooling, social position or physical advantages.

However, on this side the case histories and plain human-interest stories that are recorded in the book bring out the points probably with more vividness than any amount of statistical data. Some of these human-interest yarns are almost spooky.

Take the case of Ed and Fred, for example. These twins, separated in infancy, lived without knowledge of each other's existence for 25 years. They were both reared as only children by foster-parents who had no offspring of their own, both being led to understand that they were own children.

Though they lived a thousand miles apart they had about the same educational experience, and both found employment as repair men in branches of the same great telephone company. They were married in the same year and each had a baby son. Each owned a fox terrier named Trixie. According to their statements, both of them from early childhood were obsessed with the idea that they had a brother who had died and often stated this to their playmates.

Finally, through a remarkable coincidence they were united. They came to the Century of Progress in Chicago, where Prof. Newman was busily measuring up twins. There they fell in with a pair of young women twins, and went about seeing the sights with them. Once, in a Siamese-twin sideshow, these double twins among the spectators simply "stole the show" from the professional freaks!

This was a case of almost uncanny resemblance and coincidence, despite separation. Most of the separation stories, however, show some rather marked differences.

Then there is the case of Maxine and Virginia. They are a pair of lively youngsters, now about twelve years old. But because Virginia was once threatened with tuberculosis and was put through a course of "feeding up", she is taller, heavier and physically a year more mature than her twin. On the mental and emotional tests, however, they came out very nearly alike. Their social backgrounds are nearly the same, which may help explain that.

Eleanore and Georgiana are grown young women now. Orphaned in infancy, they were adopted separately before they were two years old. Eleanore received very little formal schooling, because she had to drop out and take care of her invalid foster-mother. Paradoxically, Georgiana received a better education because her foster-mother died; she was placed in a church school and stayed there until she was well trained in music and had gone through the teachers' course. Subsequently she taught school for a time. But both girls are now in nearly the same kind of work: one is a doctor's assistant, the other as a dentist's. And Eleanore, despite of her relative lack of formal education, is rated as very efficient.

Differences in environment showed up sharply when the two girls were given a course of tests. In all of them the better-educated Georgiana surpassed her sister. In tests for emotional reaction they are again different: "Georgiana is more rapid and uninhibited, and Eleanore is more aggressive . . . Georgiana appears to have more dislikes, fears, worries, and neurotic symptoms than Eleanore, but her attitudes are more conventional.

One case of identical twins coming to look unlike is that of Paul C. and Paul O. You would hardly take them to be identical twins now, but the most critical physical tests indicate that they are.

Paul C. has had much experience in city and business life since he was thirteen, while Paul O. (*Turn to Page 158*)

GEOGRAPHY

Scientists to Explore "Lost World" in Grand Canyon

SCIENTISTS from the American Museum of Natural History, aided by the U. S. National Park Service, will set out early this fall to explore a "Lost World" in the Grand Canyon of the Colorado River.

Shiva Temple, a sheer-sided "island" standing in the Canyon, has never been scaled by man. It will be attacked by a mountain climbing party headed by Walter A. Wood, Jr., of the American Geographical Society.

Should he and his assistant, who will start out Sept. 10 from the North Rim of the Canyon, be successful, they will lower ropes to bring an exploring party up to the top of the mesa.

Shiva Temple and Wotan's Throne, a second objective of the expedition, are both plateaus cut out by the Colorado River while it was cutting the Grand Canyon, now almost 6,000 feet deep. They have been isolated from the mainland for several million years. They have never been visited although hundreds of visitors can see them from the canyon's edge, a few miles away.

Old forms of life, which have had an opportunity to develop atop Shiva Temple without any contact with the mainland, will be studied, it was stated, to find any significant changes as compared with related species on the mainland.

Changes such as these are found when comparing animal life on the two rims of the Grand Canyon. The Kaibab and Albert squirrels, the former inhabiting the North Rim and the latter the South Rim, constitute an outstanding case of changes that have occurred in the same species when different members of it are isolated over long periods of time. Although generally similar, the two squirrels show markedly different coloring.

Science News Letter, September 4, 1937

GEOLOGY

Oil Hunting Is Still Risky Despite Better 1936 Record

SEARCHERS for new oil pools had a better "batting average" last year than they did in 1935, according to figures collected by Dr. Frederic H. Lahee, chief geologist of the Sun Oil Company of Dallas, Texas. This study, which included only true wildcats, "that is, wells drilled completely separate from producing pools," showed that these wells failed only 89 per cent. of the time in 1936, as against 93 per cent. failures in 1935.

With all the advances made in drilling and locating methods, reports Dr. Lahee to the American Association of Petroleum Geologists, there still remains a large element of risk in the business of discovering oil wells. In the case of most of the wells included in this study of the Gulf Coast area, there were some indications of possible subsurface oil, such as a dome or fault. On drilling, however, the chance of success decreased as the pay sands were found to be absent, the oil absent, or other conditions unfavorable.

Even with the most improved methods of locating oil, it is difficult to predict subsurface conditions, and the risks involved in wildcatting, whether by a large oil company, or by a farmer who drills in his back pasture, are great and probably always will be.

Often, according to Dr. Lahee, two or more holes are necessary to prove or disprove the commercial possibilities of even a clearly recognized structure. Perhaps the risks involved are best shown by the comparison of feet drilled in dry holes and producing wells. During 1935, 10.31 feet were drilled in dry holes (wells that did not produce) for every foot drilled in a producer. In 1936, the ratio was 6.83 feet of dry hole drilled for each foot in a producing well.

Annual studies of drilling successes and failures would be valuable, says Dr. Lahee, in determining the costs of discovering new wells, and the financial risks of wildcatting. The improvement in 1936 is attributed by Dr. Lahee to chance rather than to improved methods.

Despite geophysical prospecting, more accurate mapping, and great experience, oil men still hold firmly to the belief that "only the drill can tell."

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AVIATION

Robot Detects and Radios Cloud's Altitude to Pilot

A DEVICE intended to measure the height of cloud and fog banks over airports and then instantly and automatically radio the information of ceiling height to airplanes flying in the neighborhood, is revealed in a patent (No. 2,081,134) just granted to John P. Buckley of Washington, D. C.

When placed on isolated mountain tops and high territory, this device warns the pilot flying in a fog whether or not the mountain top is clear, says the inventor.

The novel automatic "ceiling informer" consists of two pivoting search lights spaced apart a definite distance. By ingenious mechanisms they are focussed so their beams intersect at the bottom of the cloud or fog bank. Thus a light spot is formed at the intersection of the beams.

Light reflected from the light spot on the bottom of the cloud is picked up by a photo-electric cell. The current generated in this cell by the reflected light controls the operation of an attached radio transmitter. A coded disk turned by a motor acts like a telegraph key to broadcast automatically a different signal for each cloud bank altitude.

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ETHNOLOGY

Wells Replace Rain Dance As Indians' Water Source

THE rythmic clank of the drilling rig is successfully displacing the tomtom of the rain dance as a means of getting irrigation water for the sun-cursed desert lands at Acoma Pueblo, New Mexico, reports the U. S. Department of Interior.

Ancient legends, telling of a fertile land watered by springs, in the present site of the desert farms of the Pueblos, gave the engineers a hint of possible underground water. Early failure by the drillers seemed to disprove the ideas, but on the advice of the older Indians, engi-

neers drilled a well 1500 feet deep, in a site chosen by the tribesmen.

Seven hundred gallons a minute of pure, soft water gushed forth to prove that the Indians were right in their advice. After this preliminary success, more than 180 wells were drilled to a depth averaging 500 feet.

With a cooperation strangely in contrast to the wars of only a few generations ago, Indians are doing much of the work on drilling these wells, and by agreement with the Indian Service, they will bear the cost of maintaining the wells and ditches and operating the pumps.

These wells may soon usher in a new era in Indian agriculture, lifting it from submarginal in character to profitable and making Acoma Village self-supporting again, as it was in the distant past, before the coming of the white man. Water, to the Indians of the arid Southwest, is as important as the "black gold" petroleum of the oil fields.

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ZOOLOGY

Skunks Justify Themselves By Destroying Insects

SKUNKS can justify their existence as man's neighbors by their high destructiveness to insects. Recent reports told of the knowing way they have with hairy caterpillars, removing the irritating hairs by rolling the caterpillar on the ground with just enough pressure to strip it, yet not crush it. Now Karl P. Schmidt of the Field Museum of Natural History tells of two young skunks raised from earliest infancy on the bottle. The first time they were given woolly caterpillars to eat, they went through the dehairing performance like experts. The knowledge of how to deal with caterpillars seems therefore to be something they are born with, and never have to learn from their parents.

Science News Letter, September 4, 1937

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AGRONOMY

NATURE RAMBLINGS by Frank Thone

Saving Their Country

SOIL erosion was a recognized menace to American agriculture even before the Revolutionary War, and the more progressive owners of land fought it with methods essentially the same as those employed today by the Soil Conservation Service.

How strongly early American agriculturists and statesmen felt about the matter is vividly brought out in a new Department of Agriculture publication, by A. R. Hall. That soil erosion should be a matter of public discussion was only natural, since the leaders of the people were often large-scale farmers themselves, like Washington and Jefferson.

Patrick Henry, whose electric phrase, "Give me liberty, or give me death!" helped to detonate the War for Independence, said after the war, "Since the achievement of our independence, he is the greatest patriot, who stops the most gullies."

The practical means for checking soil erosion adopted by Virginia farmers included contour plowing, which was then called horizontal plowing—furrows run around the slopes to catch and hold the water. Another device was leaving part of the land in permanently rooted vegetation, to bind the soil with roots. The colonists of Virginia also used what we now know as terracing.

Yet despite this recognition of the evil of soil erosion, and the knowledge of fairly successful methods to combat it, the soil of Virginia was nevertheless ruinously washed and gullied. Why?

Because, explains Mr. Hall, the Colonial farmer was an extreme individualist, and could not be induced generally to adopt sound soil conservation methods. Also, there was always a frontier of virgin land to which he could retreat when he had ruined his farm.

Now, with the frontier gone, the problem becomes a national crisis. It is being met by common action organized through a national corps of scientific soil conservationists.

Science News Letter, September 4, 1937

PUBLIC HEALTH

Federal Health Aid to States Boosts Local Appropriations

FEDERAL aid to the states for health work has not resulted in a shifting of responsibility to Uncle Sam, Dr. Thomas Parran, surgeon general of the U. S. Public Health Service, stated on his return from a trip through the West. On the contrary, state and local health departments and private health agencies have increased their own appropriations for health work under the impetus of the $8,000,000 which the U. S. Public Health Service, under the Social Security Act, has given to the states to aid in public health activities.

The gratifying situation described by Dr. Parran is in contrast to the relief situation, in which many local authorities are insisting that the federal government continue to bear the financial burden.

Dr. Parran said he found all over the country an increase in public health activities far out of proportion to the amount of money given by the federal government. In some places, under the impetus of the federal appropriation, local public health work has been started for the first time.

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BULBS

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JAN VAN GALEN
Vogelenzang near Haarlem
HOLLAND

From Page 155

has had an exclusively rural environment. Paul C. was brought up as an only child, while Paul O. had a younger foster-brother and -sister.

Paul C., the city-reared, proved superior in the tests of general mental ability and educational achievement. Paul O. beat him, however, in the arithmetic section of the Stanford test. In the temperament and other personality tests, both brothers reacted about like, both being rather slow and deliberate, rather careful and interested in details, and only moderately aggressive. There were one or two marked differences, however; Paul O. proved more rapid in making decisions and more resistant to opposition than Paul C., but less marked in his reaction to contradiction.

So it runs through the whole series of cases. The separated twins, not having each other around for mutual influence and imitation, often with sharply contrasted social backgrounds and economic experiences, ceased in many respects to be as like as the proverbial peas. The pod was broken, and the peas became different.

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Science News Letter, September 4, 1937

RADIO

September 7, 4:15 p.m., E.S.T.

AMONG THE BEDUINS OF NORTH ARABIA—Henry Field of the Field Museum of Natural History.

September 14, 4:15 p. m., E.S.T.

MENTAL HYGIENE OF WORK — Dr. George K. Pratt, psychiatrist of New York City.

In the Science Service series of radio discussions over the Columbia Broadcasting System.

MEDICINE

Free Blood Transfusions Made Possible by Red Cross

FREE blood transfusion service for patients suffering from dangerous loss of blood is the latest peacetime life-saving activity sponsored by the American Red Cross. Started by the Augusta, Ga., chapter, the movement is now spreading to other communities.

Bane of emergency hospital surgeons has been the difficulty of getting plenty of blood of the right type quickly to save lives threatened by blood loss. Autos crash, the bleeding victim is rushed to the operating room, his blood is "typed" and two pints of the requisite type are found to be needed at once. Then there is a hazardous delay, during which the patient may die, while a blood donor is located whose blood is of the corresponding kind. Adding cost to tardiness, blood donors usually charge high prices per pint—$40 in one eastern metropolis.

All this is different under the plan recently put into successful operation by the Augusta, Ga., chapter of the American Red Cross. In close cooperation with physicians of the University of Georgia Medical School and Hospital, the Chapter has rounded up 600 potential heroes and heroines, given them physical examinations, recorded their blood types, turned over names, addresses and telephone numbers to the hospital. All 600 agreed to give blood free. At night, sirening police cars taxi donors from home to hospital.

Already the free service in the life saving fluid has snatched many an accident victim and maternity case from the edge of the grave. The chapter chairman himself, by chance, was the first donor called.

Science News Letter, September 4, 1937

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INVENTION

Novel Oil Tanks Keep Ships From Rolling in Heavy Seas

OIL has been poured on raging seas to calm turbulent waves which threaten shipwreck. Now comes Edward R. Carroll of Brooklyn, N. Y., with an invention which is intended to do the same thing but keeps the oil in the ship's tanks.

The invention provides an ingenious control of the swishing of the oil inside the tanks which counteracts pitching and rolling of the ship. Used on battleships, it would keep the ship steady so that the aim of its guns would not be spoiled.

Carroll's invention, described in a patent (No. 2,077,143) recently granted to him, is designed for ships with engines that burn oil for fuel, such as Diesel engines. The ships would be provided with double bottom and wing tanks built in the sides. In these the oil is stored.

Unlike the conventional storage tanks, these tanks and the double bottom are divided up into long cells by iron plate-like partitions. Valves in the partitions can be controlled from a central station.

Valves Control Flow

By opening and closing the valves, flow of oil from one cell to the other is controlled.

Whenever the ship begins to roll, the valves distribute the flow of oil so as to act as a counterweight to the roll. Thus, when the ship tips to starboard, all the oil cannot move instantly toward that side. It is held on the port side and, acting like a person on a see-saw, helps to right the ship.

Similarly any synchronism between waves and motion of the ship which leads to violent rolling would be broken up. Such synchronism increases the roll to the point where it endangers the ship. It is brought about by the same principle involved in swinging. Just as a slight push at the proper moment sends the person in the swing higher into the air, so waves in synchronism with the roll of the ship, can cause it to roll and pitch more and more steeply.

Science News Letter, September 4, 1937

In the Balkans, tea-like beverages are made from a wide variety of native plants.

Although tuberculosis deaths have lessened in Britain, this disease still rates next to cancer as a killer.

From Page 151

the routine diagnosis and treatment of cancer, but has allocated funds for the conduct of scientific research. A Cancer Research Unit was established at the Hines Facility a number of years ago and is now in operation. The personnel of this unit has been conducting scientific investigation to ascertain the cause, the best means for early diagnosis, and the best type of treatment of cancer.

At the present time clinical research studies are being conducted by the research subdivision of central office, and the personnel of the tumor research unit on gastric cancer and intrathoracic tumors. Studies are also being conducted at the Research Unit, Hines, Ill., on cancer of the skin and the larynx.

In addition to the clinical studies, research work is being done to show the relationship of certain of the endocrine secretions to the cause of cancer. Assay methods are used to determine the quantity of the endocrine secretions as an early diagnostic test and also for the purpose of ascertaining the effect of treatment on certain types of cancer.

Studying Causes

Then, too, experimental work is being conducted on animals in the production of cancer by the external application of carcinogenic (cancer-producing) substances, and methods are being applied for facilitating the production of cancer and for inhibiting cancer growth, in the hope that the nature of cancer production and ways of inhibiting cancer growth may be discovered.

Cancer specialists tell us that the treatment of cancer varies, depending upon the type and site of the tumor. Whether deep X-ray therapy, radium, or surgery is the treatment of choice depends upon the kind of cancer, its location, the duration of the disease, and other considerations. Then, too, cancer is best treated in special hospitals in which the necessary equipment and highly trained specialists are available.

Finally, the matter of cancer education is receiving attention by the professional and technical personnel, and the administrative officers of the Veterans' Administration. The physicians of the Veterans' Administration are being instructed in the manner of, as well as the necessity for, the early diagnosis of malignant disease, the necessity for the eradication of precancerous conditions, the importance of referring suspicious cases of malignancy to a Veterans' Administration cancer clinic, etc.

The administrative officers as well as the physicians of the Veterans' Administration are disseminating information to veterans on the importance of the early diagnosis of cancer; the need for periodic health examinations to discover the disease in the early stages; and the necessity for consulting a physician and undergoing appropriate treatment.

It is believed that all of the activities just enumerated have resulted in an efficient cancer organization which is leading to a more effective control of the malignant disease in the veterans' group and is resulting in the prolonging and saving of many lives.

Science News Letter, September 4, 1937

BOTANY—MEDICINE

Common Fungus Spores Among Allergy Causes

HAY FEVER, asthma, and other allergic diseases may be traceable to the spores, or propagating cells, of common fungi that cause plant diseases, as well as to their present known causes such as ragweed and other pollens, dusts or feathers, hair, and other protein substances. This possibility has been investigated by O. C. Durham, botanist of the Abbott Laboratories.

Mr. Durham has used the same technique and apparatus for collecting air-borne spores that is commonly used in the study of air-borne pollens. There are many kinds of fungus spores in the air: wheat rust, corn smut, molds, mildews, etc.; but for convenience he has started with a study of only one kind of plant-disease spore, that of the fungus known as *Alternaria*.

The spores of this fungus have been found as numerous as the pollen grains of the ragweeds, or even more so. However, they are much smaller than ragweed pollen grains.

Skin tests with fungus spores have shown that some of them are capable of causing irritation in sensitive persons. *Alternaria* spores appear to be most active among all the fungal dusts. Spore extracts of a number of species are now being prepared for therapeutic use, as pollen extracts have been used for some time.

Numerous other plants below the rank of seed-plants are known to be quantity producers of spores. Especially prominent are mosses, ferns, and horsetail or scouring-rush. However, it has not been learned as yet whether or not these spores are capable of producing hay fever or any of the other allergies.

Science News Letter, September 4, 1937

AVIATION

Story of the Zeppelin Told By Capt. Lehmann

THE recent disaster of the Hindenburg by the burning of its own hydrogen and the discussions over the advisability of leasing, to Germany, the helium necessary to inflate the new Zeppelin now nearing completion in Germany, make most timely the new book "Zeppelin" by Captain Ernst A. Lehmann (Longmans Green & Company).

"Zeppelin" was almost completed when Capt. Lehmann staggered from the Hindenburg's blazing hulk at Lakehurst to die shortly from his serious burns. His book is a chat with a dead hero about the origins, history and future of lighter-than-air craft.

Capt. Lehmann commanded zeppelins in the days just before the world war and in all made nearly 1,100 flights in dirigibles. He had bombed London, using maps with great red circles on them which represented forbidden bombing territory; forbidden by order of the Kaiser because of the presence in these areas of the British royal family.

Hovering Over Revolutions

He made flights to South America on which his craft had to hover aloft waiting for a minor revolution to end on the ground below, before new supplies of hydrogen could be obtained for the return trip.

For those people who think of the dirigible as a "fair weather" form of air transport the World War flights will be illuminating. Germany had no weather forecaster west of Belgium and nearly a third of the flights over England were made in the face of unknown weather.

Commander Charles E. Rosendahl, U. S. N., close friend of Capt. Lehmann and American observer on some of the Graf Zeppelin's most noted flights, writes the preface and the last chapter which tell the story of the Hindenburg's tragic end. Sabotage as a possible cause for the disaster cannot yet be ruled out, concludes the American expert.

Science News Letter, September 4, 1937

SEASICKNESS
Why Bring That Up?
By Dr. Joseph Franklin Montague
What to do about Seasickness
$2 142 Pages ● Helpful ● Humorous
Illustrated ● and AUTHORITATIVE
Home Health Library, Inc.
516 Fifth Avenue, New York City
SEASICKNESS

First Glances at New Books

Hygiene

YOUR DIET AND YOUR HEALTH—Morris Fishbein—*Whittlesey House,* 298 p., $2.50. The author, editor of The Journal of the American Medical Association and of Hygiene, knows all the questions people ask about diet—and all the answers. His book consequently contains a tremendous amount of information about food values, food needs of the body, and what to eat and what not to eat if you are fat, thin, or suffering from certain diseases that require special diets. Diet fads and systems with no scientific basis are described and debunked in the author's usual forceful style. The book is easy to read and hard to forget.

Science News Letter, September 4, 1937

Geology

DELTA, ESTUARY, AND LOWER PORTION OF THE CHANNEL OF THE COLORADO RIVER 1933 to 1935—Godfrey Sykes—*Carnegie Institution of Washington,* 70 p., illus., $1.75, cloth, $1.25 paper. Results of an intensive study of the effects of Boulder Dam on the delta region of the Colorado River, by the foremost worker in the area. Amply illustrated with maps, graphs, and photographs.

Science News Letter, September 4, 1937

Ornithology

BIRDS COLLECTED BY THE CHILDS FRICK EXPEDITION TO ETHIOPIA AND KENYA COLONY. PART 2: PASSERES—Herbert Freidmann—*Govt. Print. Off.,* 506 p., illus. 70 c. Of interest chiefly to professional systematic ornithologists. It is a matter for congratulation that this important collection was secured before conquest closed Ethiopia to scientific exploration.

Science News Letter, September 4, 1937

Periodicals

GADGETS—*Hugo Gernsback, Ed. and Pub., 99 Hudson St., New York, N. Y.*—Published monthly, $3. per year, 25 c per copy. A new monthly, "digest" style magazine devoted to a resume of the newest, inexpensive labor-saving devices that peer at one from the counters of modern super-drug stores and elsewhere.

Science News Letter, September 4, 1937

Psychiatry

COMMON NEUROSES OF CHILDREN AND ADULTS—O. Spurgeon English and Gerald H. J. Pearson—*Norton,* 320 p., $3.50. Intended for medical students and general medical practitioners, this textbook from Temple University deals with the application of psychoanalytic concepts to those neuroses that frequently present problems to the family physician. The language of the volume is intelligible to those lay readers who may be interested.

Science News Letter, September 4, 1937

Physics

FOUNDATIONS OF COLLEGE PHYSICS—Samuel Robinson Williams—*Ginn,* 630 p., illus., $4. A new text by the professor of physics at Amherst College. It has the virtue of simplicity of presentation, good problems, and a superior and large number of diagrams and illustrations.

Science News Letter, September 4, 1937

Chemistry

A TEXT-BOOK OF INORGANIC CHEMISTRY FOR UNIVERSITY STUDENTS—(5thed.)—J. R. Partington—*Macmillan,* 1062 p., illus., $4.60. Another revision of this most popular British text, with more detail on the heavier isotopes of hydrogen, thermochemistry, nitrogen fixation, and silicates as the major changes.

Science News Letter, September 4, 1937

Biology

TESTS IN BIOLOGY—Frederick L. Fitzpatrick—*Houghton Mifflin,* 40 c. To go with book BIOLOGY, by Fitzpatrick.

Science News Letter, September 4, 1937

Marine Zoology

SEA-HORSE ADVENTURE—Irmengarde Eberle and Else Bostelmann—*Holiday House,* 46 p., illus., $2. Life at the bottom of warm, shallow seas, beheld through the eyes of a young sea horse, and told for young readers. The style is thoroughly naturalistic, easy-flowing, vivid; the illustrations are charming.

Science News Letter, September 4, 1937

Hygiene

PERSONAL HYGIENE APPLIED (6th ed.)—Jesse Feiring Williams—*Saunders,* 627 p., $2.50. Revised so as to bring the subject matter up to date, the material in this text has also been rearranged so as to give greater emphasis to the author's idea that application of personal hygiene in living is more important than a store of facts about physiology, anatomy and disease. This arrangement makes the book less a textbook and more suitable for general lay reading.

Science News Letter, September 4, 1937

Medicine

THE COST OF ADEQUATE MEDICAL CARE—Samuel Bradbury—*Univ. of Chicago Press,* 86 p., $1.

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Hygiene

FIRST AID TEXT-BOOK—American Red Cross—*Blakiston's,* 256 p., illus., 60 c. In this revision of a standard text, new methods of handling fractures, in line with latest medical practice, are given. There is also considerable emphasis on prevention of accidents as well as on what to do when they have occurred.

Science News Letter, September 4, 1937

Medicine

ALLERGY: ITS PRACTICAL APPLICATION—J. A. Rudolph—*Dorrance,* 224 p., $3. A book for physicians and medical students, written by a specialist in allergy with two aims: one to encourage the general practitioner to think of allergy in his daily medical problems; two, to correct mistaken notions and point out "dangers and fallacies of ready-made treatment by the commercial methods."

Science News Letter, September 4, 1937

Physiology

LABORATORY MANUAL OF GENERAL PHYSIOLOGY—T. Cunliffe Barnes—*Blakiston's,* 116 p., $1.

Science News Letter, September 4, 1937

Economic History

AN ECONOMIC SURVEY OF ANCIENT ROME—Vol. III: Roman Britain, Roman Spain, Roman Sicily, La Gaule Romaine—R. G. Collingwood, J. J. Van Nostrand, V. M. Scramuzza, and A. Grenier; Ed. by Tenny Frank and others, 664 p., *Johns Hopkins Press,* $4.

Science News Letter, September 4, 1937

Botany

ASPECTS DE VÉGÉTATION DES PARCS NATIONAUX DU CONGO BELGE: Série I: Parc National Albert; Vol. I, fasc. 1-2, Apercu général de la végétation—W. Robyns—*Institut des Parcs Nationaux du Congo Belge,* 42 p., 12 pl. (obtainable only from the *Institut,* in Brussels.) This publication constitutes the first in a series that promises to be of great interest to botanists and geographers. As an initial venture, it very advisedly undertakes only a description of the general aspects of the fascinating vegetational types in this part of Central Africa, with a series of superb photographic plates.

Science News Letter, September 4, 1937

Aeronautics

ZEPPELIN: THE STORY OF LIGHTER-THAN-AIR CRAFT—Ernst A. Lehmann—*Longmans, Green,* 365 p., illus., $3. See page 159.

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